


Grade 11 Essentials Final Exam Prep, Suggestions, Exam Review answers

Final Exam _____ at _____

Report to room _____ at _____ to pick up permission to write slip.

Bring – 2 sharpened pencils, a ruler and a scientific calculator.

 Maybe bring – a water bottle? a highlighter?

(**Don't forget your 2-sided resource page!**) 

Gather all of this the night before or sooner in clear plastic bag and put in your backpack or by door.)  



****Cell phones and any other electronic devices are PROHIBITED in gym. Leave at home or in locker please.****

Grade 11 Essential Mathematics Final Exam Outline:

1. Managing Money

- identify a **variable (recurring or not)** expense, a **fixed (recurring or not)** expense
- identify which **financial institution** and which type of bank/credit union **account** is best for a given described situation, or from a comparison of accounts and fees
- given a yearly (annual) salary, calculate the **monthly** salary
- calculate **total fees** and **service charges**
- explain the concept of “**paying yourself first**” and its importance
- calculate **10% of income** for savings
- calculate the **total income, expenses, and find the surplus (+) or deficit (-)**
- calculate **the change in income, expenses, surplus or deficit** when some of the income and/or expenses change

2. Interest and Credit

- calculate **compound** and **simple** interest using formulas (in the formulas, calculate a **portion of a year**, and figure out what number to use for **n**). Remember that the percent rate has to be **changed to decimal form** (divide by 100). Make sure you **know how to use your calculator** to find the compound interest.
- given the total amount earned including interest after a certain number of years, calculate the **original principal** (**interest = amount – principal; total amount = interest + principal**)
- given three values in a simple interest calculation, find the fourth value. Step one is write the form of the simple interest formula you will use (**simple interest triangle**).
- calculate the interest (**finance charge**) on a previous month's unpaid balance
- explain why only **paying the minimum balance on credit card statements** is a mistake
- calculate the **total cost** including fees and charges for an item bought on a **promotion**

3. Trigonometry

- using a **trig ratio**, calculate an unknown **side** that is in the *denominator* of the trig ratio or in the *numerator* of the trig ratio, or calculate an unknown **angle**.
- draw a **diagram** representing a **given situation** (the diagram will be a **right angled triangle**) and then use the above to find the answer. The answer might involve **more than one step**. It might involve **Pythagoras** to find a missing side. The question might involve **angle of elevation** and/or **angle of depression**.
- identify **opposite, adjacent, hypotenuse** for a given angle in a right angled triangle

4. Geometry – Surface Area and Volume

- Using a formula, find the **surface area** and/or **volume** of a given 3-d shape (**cube, rectangular prism, triangular prism, cylinder, sphere, square-based pyramid, cone** – or a **combination** of these shapes). (Remember when finding the surface area of a **composite shape** that you subtract the **overlap** – subtract the shape that is covering and subtract the shape that is covered).
- use a formula to find the **surface area of part of a shape** (only some of the faces; only the lateral face, etc.)
- find the **capacity** of a 3-d object

5. Statistics – Graphs

- describe the **trend** of a graph
- determine the missing values for x and y in a **table of values** that represents a **linear relation** (ie *the numbers increase/decrease by the **same number** every time*)
- choose the best graph for a given situation and say why, with at least two reasons (**bar graph, double bar graph, histogram, line graph, circle graph**)
- find the **range** of a set of values
- given a set of values, calculate the **degrees** that would be used to draw the values in a **circle graph**
- create a graph** appropriately, with the **independent and dependent** values on the appropriate axes, and **label** the axes and **title** the graph (“**TAILS**”)
- interpolate** or **extrapolate** to find a missing value
- explain how you decide **whether or not to join the points** in a line graph

6. Relations and patterns

- find the **slope**: given a **line graph (direct or partial variation)**, given a **table of values**, given **two points** (ordered pairs)
- state the **slope** of a **vertical** and **horizontal line**
- find the **rate of change** of a **line graph**
- recognize a **direct and partial variation** in **graph form, in equation form, in table of values**
- identify the **slope** in an equation or table of values of **direction variation** form; identify the **slope** and **y-intercept** in the equation or table of values in **partial variation** form
- complete a table of values**, given a linear equation
- identify **patterns** which have a **constant rate of change**
- given a **table of values, or a situation, write the linear equation** in **direct or partial variation form**
- explain **interpolation** and **extrapolation**
- in a **situation** describing a **partial variation**, identify the **fixed value** and the **variable value (constant of variation)** and then write **the linear equation**
 - use the linear equation** (in preceding step) to **find an unknown value** (*substitute known value into your equation and simplify or solve using algebra*)

Part A: Multiple Choice

-1b 2d 4a 6c 7d 8b 9a 10c

-1b 3c 4d 5c (skip) 9a, 10d (skip)

Part B: definitions

-3. combination account; 4. Extrapolation; 5. Slope; 6. Expenses; 7. Tangent ratio; 8. Budget; 9. Variable; 10. independent variable

-1. Discrete; 2. Buy-now, pay later; 3. Faces approach; 4. Low risk; 5. Pyramid; 6. Line graph; 7. Consumer loan; 8. Dependent; 9. Cylinder; 10. Credit

Part C: long answer

1. 12% 2a) A - \$141 059.88 B - \$138 281.73. A has a better return. B) \$2778.15 more

3a) 9%; b) \$23 910.75; c) \$89.25 5.) 9.75%; 3 years. (skip)

6. - Do you have enough money to pay cash now?

- Do you need item immediately?

-Can you save enough money to pay cash for it within 6 months?

7.) Oct 5 – Nov 20 is 47 days. Use $\frac{47}{365}$ for time. Interest = \$3.83

8) \$71.79 9a) \$3134.88 b) \$3340 c) $\frac{205.12}{3134.88} = 6.5\%$

1.

Total members: $5 + 8 + 3 + 3 + 7 = 26$

Percents (3 marks for total and percents)

$$\text{pepperoni} = \frac{5}{26} = 19\%$$

$$\text{cheese} = \frac{8}{26} = 31\%$$

$$\text{Hawaiian} = \frac{3}{26} = 12\%$$

$$\text{vegetarian} = \frac{3}{26} = 12\%$$

$$\text{meat lovers} = \frac{7}{26} = 27\%$$

Note: This adds up to 101%, so students should choose one number to round down (e.g., cheese = 30%). (½ mark for checking totals, rounding)

Angles (½ mark each)

$$\text{pepperoni} = 0.19 \times 360^\circ = 68^\circ$$

$$\text{cheese} = 0.30 \times 360^\circ = 108^\circ$$

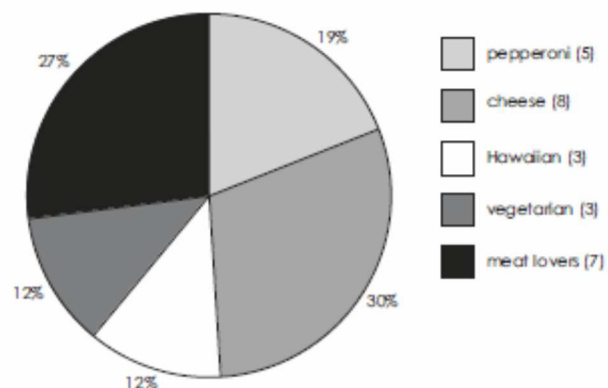
$$\text{Hawaiian} = 0.12 \times 360^\circ = 43^\circ$$

$$\text{vegetarian} = 0.12 \times 360^\circ = 43^\circ$$

$$\text{meat lovers} = 0.27 \times 360^\circ = 97^\circ$$

Note: This adds up to 359°, so whatever was rounded down in the previous step (cheese) should be rounded up now (e.g., cheese = 109°). (½ mark for checking totals, rounding)

Preferred Pizzas of Student Council Members



2. a) After a number of crimes are committed at local schools, the media is suggesting that harsher punishments are necessary to reduce the increasing amount of juvenile crime. Which graph would support this argument best? Explain why. (2 marks)

Answer:

Graph A – Because the vertical scale is so small, the change from one year to another appears quite large. This would help support the media's claim because it makes it seem as though youth crime is increasing by a lot each year. In fact, the largest growth is only (approximately) 200. This may seem like a lot, but $\frac{200}{4200}$ is less than 5%.

Graph B would not be as effective because, although it makes the number of admissions look high, it does not appear to be increasing greatly.

Graph C would not be effective because the bars are short (so it looks like there is little juvenile crime) and they do not seem to increase by very much.

- b) Which graph is the most "honest" graph because it does not present the data in a distorted way? (1 mark)

Answer:

Graph B

1. monthly income \$2318.02 expenses \$2032.22

b) No she has a surplus of \$285.80.

c) No. It would take more than 7 years for her to get to \$25 000 by saving her surplus each month . And in doing that she's not saving for her retirement or for emergencies.

d) bus tickets \$2.50 more; bus passes \$19.15 more. She is still not in deficit. She has \$266.15 surplus.

2. Answers will vary. Some advantages include:

- paying bills online
- automatic transfers are easy to set up, can automatically pay bills
- do not need to go to the bank to transfer funds from one account to another
- online statements save paper
- check balances from home or anywhere in the world
- 24-hour access to bank account

1. Independent variable: Time in Minutes
Dependent variable: Number of Words

- 2.a A set of numbers represents a linear pattern if they increase or decrease by the same amount each time.

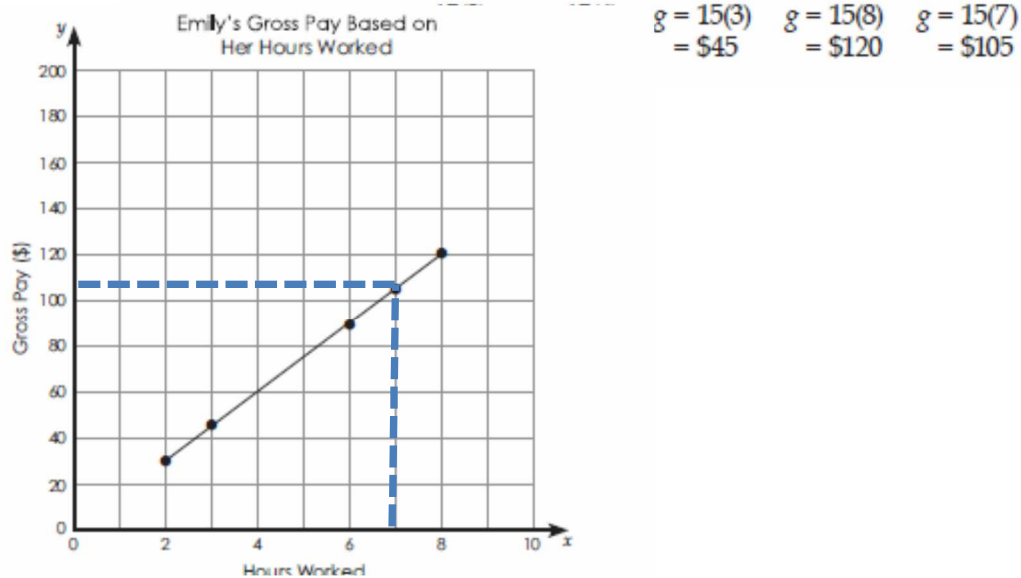
For example: -20, -17, -14, -11, -8... increases by 3 each time and 52, 43, 34, 25, 16... decreases by 9 (or increases by -9) each time

3. Yes because the slope is the same for all points.... or because the proportions of each pair of values is the same.

3.a) $g = 15h$ b)

	Mon.	Tues.	Wed.	Thurs.	Fri.
Hours Worked	2	6	3	8	7
Gross Pay (\$)	30	90	45	120	105

3c)



3d)

The hourly rate determines how steep the line is. If she were paid only \$10/hr., the line would be less steep. This is because the hourly wage is the slope of the graph.

3e)

If Emily were paid \$20 per shift plus her hourly wage, the graph would change from a direct variation to a partial variation. The line would cross the y -axis (vertical axis) at $(0, 20)$ instead of the origin $(0, 0)$. The slope would be the same as the original graph.

4a) slope = $\frac{4}{3}$, or 1.33 g/cm^3 b) m represents mass; v represents volume; $m = 1.33v$

c) substitute 18 into equation for " m ". Solve with algebra. $V = 13.5 \text{ cm}^3$

d) Interpolate on the graph. Find 9 on volume axis. Go up to line graph. Go from line graph to pay axis. 12g.

5a. height of building = 90.01 m. b) height of flagpole = 104.89m c) $\theta = 13^\circ$

How to Prepare for a Math exam

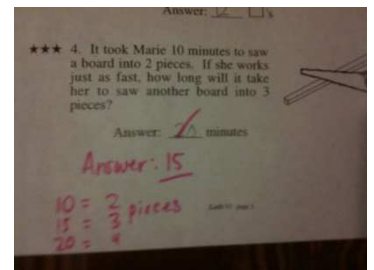
You mostly don't "study" for a Math exam. You really need to **'practice'** for a math exam.

- **Start on day one. Every day in class you are preparing for the test/exam.** The biggest part of preparing for a test or an exam is to **work effectively right through the course.** Don't wait until the test is looming and then try to learn everything you didn't really understand.



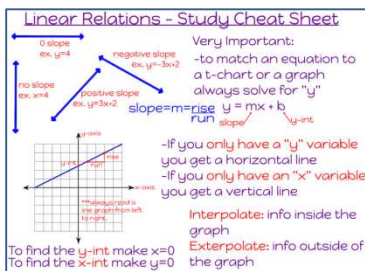
-**Math is not a spectator sport.** You cannot learn mathematics by just going to class and watching the teacher lecture and work problems. **In order to learn mathematics you must be actively involved in the learning process.** You've got to **attend class (on time)** and **pay attention** while in class. You've got to take a good set of **notes**. You've got to **work** homework problems, even if the teacher doesn't assign any. You've got to **study/review on a regular schedule**, not just the night before exams. **In other words you need to be involved in the learning process.**

- View homework as a "study guide." Treat your homework like it is "test practice" (and learn from your mistakes). **Circle all problems** that you do not know how to do and **ask for help** in class the next day. As you correct your homework in class, **circle all problems you did wrong** and **take notes** about how to do them correctly. Do the same with **quizzes and tests.**



-Look through all your **booklets and quizzes and tests.** Note the questions you had circled. Do you now understand? **What do you think you need to do more work on and/or seek help with?**

-**Read the exam outline carefully. Highlight** the ones that you think you need to do more work on/ seek help with. You can probably find questions in the booklets that you can go back and do to **practice.** Or you can look on the internet for practice questions. If you need help finding questions, ask your teacher. Make sure that any question you complete you then check the answer. If you can't find the right answer, show your teacher to make sure you did the question correctly.



-Use the exam outline and all of your resource pages from each unit to **make a two-sided exam resource page.** Write all the things that you are worried you may forget. You will have a formula page at the exam but you might want to write rules, definitions, examples, and reminders to yourself. This relieves the load on your short term memory.

-Use the **exam review booklet** to practice. **Correct your answers** with the solutions in this booklet. You don't need to complete the booklet – just do the questions in the booklet that you think you need to practice.



-Seek **help** from friends, family. Ask for help from teacher in class. Go to Math help at lunch hour in room 97/98. Look in classroom for times when your teacher is available before school and at lunch (or ask).



Make sure you bring your scientific calculator. It is very difficult to succeed without it. Buy a calculator if you need it.

TIPS FOR SUCCESSFUL TEST TAKING / EXAM WRITING

- If you are feeling *anxious* before an exam, find a place at school where you can both physically and mentally relax. Arrive in time to arrange all of the things you will need for the test; **scientific calculator, sharpened pencils, eraser, ruler, protractor, and a water bottle**. *Try to avoid talking with classmates about the test*, instead, concentrate on deep breathing and relaxation. **Review the following suggestions and use those, which may be helpful for you...**

-Remember that you have your **resource page** that will relieve the load on your short term memory.

-Always read the directions carefully. Underline, circle, highlight, annotate. Re-read the question once you have finished to make sure you answered the question fully.

-Do the **easiest problems** first. This should give you confidence and allow you to relax a little. Be sure to do your work neatly. If your work cannot be read, you will not get credit for it.

-Whenever possible, **estimate a reasonable answer** before you start a problem and when you finish the problem, check to see if your answer is reasonable. If you get stuck, mark the problem so you will remember to come back to it later and go on to another. Remember to include units (ft., in., \$, etc).

-Do the **rest** of the problems in **order of difficulty**.

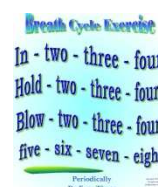
-Go back to the problems you didn't finish and **do what you can**. Show all steps because **you may get partial credit** even if you cannot complete a problem.

-When you are finished, if time permits, **go back over the test to see that all the problems are finished as much as possible and your answers are indicated**. Use all of the time allowed unless you are sure that there is nothing more that you can do. **Make sure you didn't miss a question or a page!!**

-**Don't leave any multiple choice questions blank**. Evaluate each answer. Eliminate the ones that are for sure wrong and then choose one of the others. If you can't eliminate any, you still have a 25% chance of being right. If you leave it blank you have a 0% chance of being right.

-If you find yourself feeling anxious it may be helpful to have a **calming card**. This is a 3x5 card on which you list all the ways that you have found to help you relax and stay focused. It may include a personal coping statement such as "I have studied hard and prepared well for this test, I will do fine" or a reminder to stop, breathe and relax your tense muscles.

- Read directions carefully.
- Complete the questions you know for sure.
- Eliminate wrong answers on multiple choice questions.
- Check your work if you have time.
- Have extra pencils and erasers.
- Pace yourself.



9 TOP TIPS FOR BETTER EXAM REVISION

The science behind studying more efficiently and effectively!



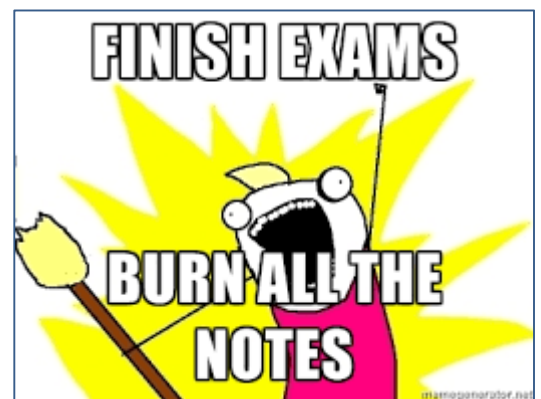
...EAT BREAKFAST



...PUT YOUR PHONE AWAY



...START EARLY



All the best for
your Exams